

(1) the peptide corresponding to ORF-Q having the following amino acid sequence:

[Cys-Gln-Glu-Glu-Lys-Gln-Arg-Ser-Leu-Gly-Ile-]Met-Glu-Asn-Arg-Trp-Gln-Val-Met-Ile-Val-Trp-Gln-Val-Asp-Arg-Met-Arg-Ile-Arg-Thr-Trp-Lys-Ser-Leu-Val-Lys-His-His-Met-Tyr-Val-Ser-Gly-Lys-Ala-Arg-Gly-Trp-Phe-Tyr-Arg-His-His-Tyr-Glu-Ser-Pro-His-Pro-Arg-Ile-Ser-Ser-Glu-Val-His-Ile-Pro-Leu-Gly-Asp-Ala-Arg-Leu-Val-Ile-Thr-Thr-[Val]Tyr-Trp-Gly-Leu-His-Thr-Gly-Glu-[Pro]Arg-Asp-Trp-His-Leu-Gly-Gln-Gly-Val-Ser-Ile-Glu-Trp-Arg-Lys-Lys-Arg-Tyr-Ser-Thr-Gln-Val-Asp-Pro-Glu-Leu-Ala-Asp-Gln-Leu-Ile-His-Leu-Tyr-Tyr-Phe-Asp-Cys-Phe-Ser-Asp-Ser-Ala-Ile-Arg-Lys-Ala-Leu-Leu-Gly-His-Ile-Val-Ser-Pro-Arg-Cys-[Phe]Glu-Tyr-Gln-Ala-Gly-His-Asn-Lys-Val-Gly-Ser-Leu-Gln-Tyr-Leu-Ala-Leu-Ala-Leu-Ile-Thr-Pro-Lys-Lys-Ile-Lys-Pro-Pro-Leu-Pro-Ser-Val-Thr-Lys-Leu-Thr-Glu-Asp-Arg-Trp-Asn-Lys-Pro-Gln-Lys-Thr-Lys-Gly-His-Arg-Gly-Ser-His-Thr-Met-Asn-Gly-His;

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N. W.
WASHINGTON, DC 20005
1-202-408-4000

(2) the peptide corresponding to ORF-R having the following amino acid sequence:

[Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-Phe]Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-Glu-Lys-Gly-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe-Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-Trp-Arg-Phe-Asp-Ser-Arg-Leu-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-His-Pro-Glu-Tyr-Phe-Lys-Asn-Cys;

(3) the peptide corresponding to ORF-1 having the following amino acid sequence:

Met-Glu-Gln-Ala-Pro-Glu-Asp-Glu-Gly-Pro-Gln-Arg-Asp-Pro-His-Asn-Glu-Trp-Thr-Leu-Gln-Leu-Leu-Glu-Glu-Leu-Lys-Asn-Glu-Ala-Val-Arg-His-Phe-Pro-Arg-Ile-Trp-Leu-His-Gly-Leu-Gly-Gln-His-Ile-Tyr-Glu-Thr-Tyr-Gly-Asp-Thr-Trp-Ala-Gly-Val-Glu-Ala-Ile-Ile-Arg-Ile-Leu-Gln-Gln-Leu-Leu-Phe-Ile-His-Phe-Arg-Ile-Gly-Cys-Arg-His-Ser-Arg-Ile-Gly-Val-Thr-Gln-Gln-Arg-Arg-Ala-Arg-Asn-Gly-Ala-Ser-Arg-Ser;

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000

C 1
Cont

(4) the peptide corresponding to ORF-2 having the following amino acid sequence:

[Ala-Leu-Leu-Asn-Arg-Gly-Glu-Gln-Glu-] Met-Glu-Pro-Val-Asp-Pro-Arg-Leu-Glu-Pro-Trp-Lys-His-Pro-Gly-Ser-Gln-Pro-Lys-Thr-Ala-Cys-Thr-Thr-Cys-Tyr-Cys-Lys-Lys-Cys-Cys-Phe-His-Cys-Gln-Val-Cys-Phe-Thr-Thr-Lys-Ala-Leu-Gly-Ile-Ser-Tyr-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Pro-Pro-Gln-Gly-Ser-Gln-Thr-His-Gln-Val-Ser-Leu-Ser-Lys-Gln; and

(5) the peptide corresponding to ORF-3 having the following amino acid sequence:

Lys-Val-Leu-Leu-Ser-Leu-Pro-Ser-Leu-Phe-His-Asn-Lys-Ser-Leu-Arg-His-Leu-Leu-Trp-Gln-Glu-Glu-Ala-Glu-Thr-Ala-Thr-Lys-Thr-Ser-Ser-Arg-Gln-Ser-Asp-Ser-Ser-Ser-Phe-Ser-Ile-Lys-Ala-Val-Ser-Ser-Thr-Cys-Asn-Ala-Thr-Tyr-Thr-Asn-Ser-Asn-Ser-Ser-Ile-Ser-Ser-Asn-Asn-Asn-Ser-Asn-Ser-Cys-Val-Val-His-Ser-Asn-His-Arg-Ile;

(6) (5) the peptide corresponding to ORF-4 having the following amino acid sequence:

[Val-Val-His-Val-] Met-Gln-Pro-Ile-Gln-Ile-Ala-Ile-Ala-Ala-Leu-Val-Val-Ala-Ile-Ile-Ile-Ala-Ile-Val-Val-Trp-Ser-Ile-Val-Ile-Ile-Glu-Tyr-Arg-Lys-Ile-Leu-Arg-Gln-Arg-Lys-Ile-Asp-Arg-Leu-Ile-Asp-Arg-Leu-Ile-Glu-Arg-Ala-Glu-Asp-Ser-Gly-Asn-Glu-Ser-Glu-Gly-Glu-Ile-Ser-Ala-Leu-Val-Glu-Met-Gly-Val-Glu-Met-Gly-His-His-Ala-Pro-Trp-Asp-Ile-Asp-Asp-Leu; [and

(7) the peptide corresponding to ORF-5 having the following amino acid sequence:

His-Leu-Ser-Gly-Thr-Ile-Cys-Gly-Ala-Leu-Cys-Leu-Phe-Ser-Tyr-His-Arg-Leu-Arg-Asp-Leu-Leu-Leu-Ile-Val-Thr-Arg-Ile-Val-Glu-Leu-Leu-Gly-Arg-Arg-Gly-Trp-Glu-Ala-Leu-Lys-Tyr-Trp-Trp-Asn-Leu-Leu-Gln-Tyr-Trp-Ser-Gln-Glu-Leu-Lys-Asn-Ser-Ala-Val-Ser-Leu-Leu-Asn-Ala-Thr-Ala-Ile-Ala-Val-Ala-Glu-Gly-Thr-Asp-Arg-Val-Ile-Glu-Val-Val-Gln-Gly-Ala-Cys-Arg-Ala-Ile-Arg-His-Ile-Pro-Arg-Arg-Ile-Arg-Gln-Gly-Leu-Glu-Arg-Ile-Leu-Leu-;] and

(b) detecting the formation of antigen-antibody complex between said one or more peptides and antibodies present in said biological sample.

23. (Amended) A diagnostic kit for the *in vitro* detection of the presence or absence of antibodies which bind to antigens of a human immunodeficiency virus type 1 (HIV-1) comprising:

(a) a peptide composition comprising one or more peptides selected from the group consisting of:

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000

(1) the peptide corresponding to ORF-Q having the following amino acid sequence:

*C²
Cont*

[Cys-Gln-Glu-Glu-Lys-Gln-Arg-Ser-Leu-Gly-Ile-]Met-Glu-Asn-Arg-Trp-Gln-Val-Met-Ile-Val-Trp-Gln-Val-Asp-Arg-Met-Arg-Ile-Arg-Thr-Trp-Lys-Ser-Leu-Val-Lys-His-His-Met-Tyr-Val-Ser-Gly-Lys-Ala-Arg-Gly-Trp-Phe-Tyr-Arg-His-His-Tyr-Glu-Ser-Pro-His-Pro-Arg-Ile-Ser-Ser-Glu-Val-His-Ile-Pro-Leu-Gly-Asp-Ala-Arg-Leu-Val-Ile-Thr-Thr-[Val]Tyr-Trp-Gly-Leu-His-Thr-Gly-Glu-[Pro]Arg-Asp-Trp-His-Leu-Gly-Gln-Gly-Val-Ser-Ile-Glu-Trp-Arg-Lys-Lys-Arg-Tyr-Ser-Thr-Gln-Val-Asp-Pro-Glu-Leu-Ala-Asp-Gln-Leu-Ile-His-Leu-Tyr-Tyr-Phe-Asp-Cys-Phe-Ser-Asp-Ser-Ala-Ile-Arg-Lys-Ala-Leu-Leu-Gly-His-Ile-Val-Ser-Pro-Arg-Cys-[Phe]Glu-Tyr-Gln-Ala-Gly-His-Asn-Lys-Val-Gly-Ser-Leu-Gln-Tyr-Leu-Ala-Leu-Ala-Leu-Ile-Thr-Pro-Lys-Lys-Ile-Lys-Pro-Pro-Leu-Pro-Ser-Val-Thr-Lys-Leu-Thr-Glu-Asp-Arg-Trp-Asn-Lys-Pro-Gln-Lys-Thr-Lys-Gly-His-Arg-Gly-Ser-His-Thr-Met-Asn-Gly-His;

LAW OFFICES
FINNEGAN, HENDERSON
PARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000

(2) the peptide corresponding to ORF-R having the following amino acid sequence:

*C 2
Cont*

[Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-Phe]Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-Glu-Lys-Gly-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe-Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-Trp-Arg-Phe-Asp-Ser-Arg-Leu-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-His-Pro-Glu-Tyr-Phe-Lys-Asn-Cys;

(3) the peptide corresponding to ORF-1 having the following amino acid sequence:

Met-Glu-Gln-Ala-Pro-Glu-Asp-Gln-Gly-Pro-Gln-Arg-Asp-Pro-His-Asn-Glu-Trp-Thr-Leu-Gln-Leu-Leu-Glu-Leu-Lys-Asn-Glu-Ala-Val-Arg-His-Phe-Pro-Arg-Ile-Trp-Leu-His-Gly-Leu-Gly-Gln-His-Ile-Tyr-Glu-Thr-Tyr-Gly-Asp-Thr-Trp-Ala-Gly-Val-Glu-Ala-Ile-Ile-Arg-Ile-Leu-Gln-Gln-Leu-Leu-Phe-Ile-His-Phe-Arg-Ile-Gly-Cys-Arg-His-Ser-Arg-Ile-Gly-Val-Thr-Gln-Gln-Arg-Arg-Ala-Arg-Asn-Gly-Ala-Ser-Arg-Ser;

C2
Cont

(4) the peptide corresponding to ORF-2 having the following amino acid sequence:

[Ala-Leu-Leu-Asn-Arg-Gly-Glu-Gln-Glu-]Met-Glu-Pro-Val-Asp-Pro-Arg-Leu-Glu-Pro-Trp-Lys-His-Pro-Gly-Ser-Gln-Pro-Lys-Thr-Ala-Cys-Thr-Thr-Cys-Tyr-Cys-Lys-Lys-Cys-Cys-Phe-His-Cys-Gln-Val-Cys-Phe-Thr-Thr-Lys-Ala-Leu-Gly-Ile-Ser-Tyr-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Pro-Pro-Gln-Gly-Ser-Gln-Thr-His-Gln-Val-Ser-Leu-Ser-Lys-Gln; and

(5) the peptide corresponding to ORF-3 having the following amino acid sequence:

Lys-Val-Leu-Leu-Ser-Leu-Pro-Ser-Leu-Phe-His-Asn-Lys-Ser-Leu-Arg-His-Leu-Leu-Trp-Gln-Glu-Glu-Ala-Glu-Thr-Ala-Thr-Lys-Thr-Ser-Ser-Arg-Gln-Ser-Asp-Ser-Ser-Ser-Phe-Ser-Ile-Lys-Ala-Val-Ser-Ser-Thr-Cys-Asn-Ala-Thr-Tyr-Thr-Asn-Ser-Asn-Ser-Ser-Ile-Ser-Ser-Ser-Asn-Asn-Asn-Ser-Asn-Ser-Cys-Val-Val-His-Ser-Asn-His-Arg-Ile;

(6)] (5) the peptide corresponding to ORF-4 having the following amino acid sequence:

[Val-Val-His-Val-]Met-Gln-Pro-Ile-Gln-Ile-Ala-Ile-Ala-Ala-Leu-Val-Val-Ala-Ile-Ile-Ile-Ala-Ile-Val-Val-Trp-Ser-Ile-Val-Ile-Ile-Glu-Tyr-Arg-Lys-Ile-Leu-Arg-Gln-Arg-Lys-Ile-Asp-Arg-Leu-Ile-Asp-Arg-Leu-Ile-Glu-Arg-Ala-Glu-Asp-Ser-Gly-Asn-Glu-Ser-Glu-Gly-Glu-Ile-Ser-Ala-Leu-Val-Glu-Met-Gly-Val-Glu-Met-Gly-His-His-Ala-Pro-Trp-Asp-Ile-Asp-Asp-Leu;

C2
Concl'd

[(7) the peptide corresponding to ORF-5 having the following amino acid sequence:

His-Leu-Ser-Gly-Thr-Ile-Cys-Gly-Ala-Leu-Cys-Leu-Phe-Ser-Tyr-His-Arg-Leu-Arg-Asp-Leu-Leu-Leu-Ile-Val-Thr-Arg-Ile-Val-Glu-Leu-Leu-Gly-Arg-Arg-Gly-Trp-Glu-Ala-Leu-Lys-Tyr-Trp-Trp-Asn-Leu-Leu-Gln-Tyr-Trp-Ser-Gln-Glu-Leu-Lys-Asn-Ser-Ala-Val-Ser-Leu-Leu-Asn-Ala-Thr-Ala-Ile-Ala-Val-Ala-Gln-Gly-Thr-Asp-Arg-Val-Ile-Glu-Val-Val-Gln-Gly-Ala-Cys-Arg-Ala-Ile-Arg-His-Ile-Pro-Arg-Arg-Ile-Arg-Gln-Gly-Leu-Glu-Arg-Ile-Leu-Leu-;]

(b) reagents for the detection of the formation of antigen-antibody complex; and

(c) a biological reference sample lacking antibodies recognized by said peptide composition,

wherein the peptide composition, reagents, and biological reference sample are present in an amount sufficient to perform the detection of antigen-antibody complex formed between said one or more peptides and antibodies present in said biological sample.

C3

25. (Amended) A diagnostic kit for the *in vitro* detection of the presence or absence of antibodies which bind to antigens of a human immunodeficiency virus type 1 (HIV-1) comprising:

*C 3
Concl*

(a) a peptide composition comprising a peptide corresponding to ORF-R having the following amino acid sequence: [Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-Phe]Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-Glu-Lys-Gly-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-Trp-Arg-Phe-Asp-Ser-Arg-Leu-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-His-Pro-Glu-Tyr-Phe-Lys-Asn-Cys;

(b) reagents for the detection of the formation of antigen-antibody complex; and

(c) a biological reference sample lacking antibodies recognized by said peptide composition,

wherein the peptide composition, reagents, and biological reference sample are present in an amount sufficient to perform the detection of antigen-antibody complex formed between said peptide and antibodies present in said biological sample.

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000

27. (Amended) An *in vitro* diagnostic method for the detection of the presence or absence of antigens which bind to antibodies of a human immunodeficiency virus type 1 (HIV-1) comprising:

(a) contacting a biological sample with one or more antibodies selected from the group consisting of:

(1) an antibody against a peptide corresponding to ORF-Q having the following amino acid sequence:

C 4

[Cys-Gln-Glu-Glu-Lys-Gln-Arg-Ser-Leu-Gly-Ile-]Met-Glu-Asn-Arg-Trp-Gln-Val-Met-Ile-Val-Trp-Gln-Val-Asp-Arg-Met-Arg-Ile-Arg-Thr-Trp-Lys-Ser-Leu-Val-Lys-His-His-Met-Tyr-Val-Ser-Gly-Lys-Ala-Arg-Gly-Trp-Phe-Tyr-Arg-His-His-Tyr-Glu-Ser-Pro-His-Pro-Arg-Ile-Ser-Ser-Glu-Val-His-Ile-Pro-Leu-Gly-Asp-Ala-Arg-Leu-Val-Ile-Thr-Thr-[Val]Tyr-Trp-Gly-Leu-His-Thr-Gly-Glu-[Pro]Arg-Asp-Trp-His-Leu-Gly-Gln-Gly-Val-Ser-Ile-Glu-Trp-Arg-Lys-Lys-Arg-Tyr-Ser-Thr-Gln-Val-Asp-Pro-Glu-Leu-Ala-Asp-Gln-Leu-Ile-His-Leu-Tyr-Tyr-Phe-Asp-Cys-Phe-Ser-Asp-Ser-Ala-Ile-Arg-Lys-Ala-Leu-Leu-Gly-His-Ile-Val-Ser-Pro-Arg-Cys-[Phe]Glu-Tyr-Gln-Ala-Gly-His-Asn-Lys-Val-Gly-Ser-Leu-Gln-Tyr-Leu-Ala-Leu-Ala-Leu-Ile-Thr-Pro-Lys-Lys-Ile-Lys-Pro-Pro-Leu-Pro-Ser-Val-Thr-Lys-Leu-Thr-Glu-Asp-Arg-Trp-Asn-Lys-Pro-Gln-Lys-Thr-Lys-Gly-His-Arg-Gly-Ser-His-Thr-Met-Asn-Gly-His;

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N. W.
WASHINGTON, DC 20005
1-202-408-4000

(2) an antibody against a peptide corresponding to
ORF-R having the following amino acid sequence:

*C4
Cont*

[Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-
Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-
Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-
[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-
Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-
Phe]Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-
Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-
Glu-Lys-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-
Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-
Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-
Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe-
Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-
Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-
Trp-Arg-Phe-Asp-Ser-Arg-Ile-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-
His-Pro-Glu-Tyr-Phe-Lys-Ash-Cys;

(3) an antibody against a peptide corresponding to
ORF-1 having the following amino acid sequence:

Met-Glu-Gln-Ala-Pro-Glu-Asp-Gln-Gly-Pro-Gln-Arg-Asp-Pro-His-Asn-
Glu-Trp-Thr-Leu-Gln-Leu-Leu-Glu-Glu-Leu-Lys-Asn-Glu-Ala-Val-Arg-
His-Phe-Pro-Arg-Ile-Trp-Leu-His-Gly-Leu-Gly-Gln-His-Ile-Tyr-Glu-
Thr-Tyr-Gly-Asp-Thr-Trp-Ala-Gly-Val-Glu-Ala-Ile-Ile-Arg-Ile-Leu-
Gln-Gln-Leu-Leu-Phe-Ile-His-Phe-Arg-Ile-Gly-Cys-Arg-His-Ser-Arg-
Ile-Gly-Val-Thr-Gln-Gln-Arg-Arg-Ala-Arg-Asn-Gly-Ala-Ser-Arg-Ser;

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 1 STREET, N. W.
WASHINGTON, DC 20005
1-202-408-4000

*C4
cont*

(4) an antibody against a peptide corresponding to ORF-2 having the following amino acid sequence:

[Ala-Leu-Leu-Asn-Arg-Gly-Glu-Gln-Glu-]Met-Glu-Pro-Val-Asp-Pro-Arg-Leu-Glu-Pro-Trp-Lys-His-Pro-Gly-Ser-Gln-Pro-Lys-Thr-Ala-Cys-Thr-Thr-Cys-Tyr-Cys-Lys-Lys-Cys-Cys-Phe-His-Cys-Gln-Val-Cys-Phe-Thr-Thr-Lys-Ala-Leu-Gly-Ile-Ser-Tyr-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Pro-Pro-Gln-Gly-Ser-Gln-Thr-His-Gln-Val-Ser-Leu-Ser-Lys-Gln; and

((5) an antibody against a peptide corresponding to ORF-3 having the following amino acid sequence:

Lys-Val-Leu-Leu-Ser-Leu-Pro-Ser-Leu-Phe-His-Asn-Lys-Ser-Leu-Arg-His-Leu-Leu-Trp-Gln-Glu-Glu-Ala-Glu-Thr-Ala-Thr-Lys-Thr-Ser-Ser-Arg-Gln-Ser-Asp-Ser-Ser-Ser-Phe-Ser-Ile-Lys-Ala-Val-Ser-Ser-Thr-Cys-Asn-Ala-Thr-Tyr-Thr-Asn-Ser-Asn-Ser-Ser-Ile-Ser-Ser-Asn-Asn-Asn-Ser-Asn-Ser-Cys-Val-Val-His-Ser-Asn-His-Arg-Ile;

(6)] (5) an antibody against a peptide corresponding to ORF-4 having the following amino acid sequence:

[Val-Val-His-Val-]Met-Gln-Pro-Ile-Gln-Ile-Ala-Ile-Ala-Ala-Leu-Val-Val-Ala-Ile-Ile-Ile-Ala-Ile-Val-Val-Trp-Ser-Ile-Val-Ile-Ile-Glu-Tyr-Arg-Lys-Ile-Leu-Arg-Gln-Arg-Lys-Ile-Asp-Arg-Leu-Ile-Asp-Arg-Leu-Ile-Glu-Arg-Ala-Glu-Asp-Ser-Gly-Asn-Glu-Ser-Glu-Gly-Glu-Ile-Ser-Ala-Leu-Val-Glu-Met-Gly-Val-Glu-Met-Gly-His-His-Ala-Pro-Trp-Asp-Ile-Asp-Asp-Leu; [and

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
I-202-408-4000

C4
Concluded

(7) an antibody against a peptide corresponding to
ORF-5 having the following amino acid sequence:

His-Leu-Ser-Gly-Thr-Ile-Cys-Gly-Ala-Leu-Cys-Leu-Phe-Ser-Tyr-His-
Arg-Leu-Arg-Asp-Leu-Leu-Leu-Ile-Val-Thr-Arg-Ile-Val-Glu-Leu-Leu-
Gly-Arg-Arg-Gly-Trp-Glu-Ala-Leu-Lys-Tyr-Trp-Trp-Asn-Leu-Gln-
Tyr-Trp-Ser-Gln-Glu-Leu-Lys-Asn-Ser-Ala-Val-Ser-Leu-Leu-Asn-Ala-
Thr-Ala-Ile-Ala-Val-Ala-Glu-Gly-Thr-Asp-Arg-Val-Ile-Glu-Val-Val-
Gln-Gly-Ala-Cys-Arg-Ala-Ile-Arg-His-Ile-Pro-Arg-Arg-Ile-Arg-Gln-
Gly-Leu-Glu-Arg-Ile-Leu-Leu-;] and

(b) detecting the formation of antigen-antibody complex
between said one or more antibodies and antigens present in said
biological sample.

C5

29. (Amended) An *in vitro* diagnostic method for the
detection of the presence or absence of antigens which bind to
antibodies of a human immunodeficiency virus type 1 (HIV-1)
comprising:

(a) contacting a biological sample with an antibody against a peptide corresponding to ORF-R having the following amino acid sequence:

[Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-Phe]Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-Glu-Lys-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-Trp-Arg-Phe-Asp-Ser-Arg-Leu-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-His-Pro-Glu-Tyr-Phe-Lys-Asn-Cys; and

(b) detecting the formation of antigen-antibody complex between said antibody and antigens present in said biological sample.

31. (Amended) A diagnostic kit for the *in vitro* detection of the presence or absence of antigens which bind to antibodies of a human immunodeficiency virus type 1 (HIV-1) comprising:

(a) an antibody composition comprising one or more antibodies selected from the group consisting of:

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000

(1) an antibody against a peptide corresponding to
ORF-Q having the following amino acid sequence:

[Cys-Gln-Glu-Glu-Lys-Gln-Arg-Ser-Leu-Gly-Ile-]Met-Glu-Asn-Arg-
Trp-Gln-Val-Met-Ile-Val-Trp-Gln-Val-Asp-Arg-Met-Arg-Ile-Arg-Thr-
Trp-Lys-Ser-Leu-Val-Lys-His-His-Met-Tyr-Val-Ser-Gly-Lys-Ala-Arg-
Gly-Trp-Phe-Tyr-Arg-His-His-Tyr-Glu-Ser-Pro-His-Pro-Arg-Ile-Ser-
Ser-Glu-Val-His-Ile-Pro-Leu-Gly-Asp-Ala-Arg-Leu-Val-Ile-Thr-Thr-
[Val]Tyr-Trp-Gly-Leu-His-Thr-Gly-Glu-[Pro]Arg-Asp-Trp-His-Leu-
Gly-Gln-Gly-Val-Ser-Ile-Glu-Trp-Arg-Lys-Lys-Arg-Tyr-Ser-Thr-Gln-
Val-Asp-Pro-Glu-Leu-Ala-Asp-Gln-Leu-Ile-His-Leu-Tyr-Tyr-Phe-Asp-
Cys-Phe-Ser-Asp-Ser-Ala-Ile-Arg-Lys-Ala-Leu-Leu-Gly-His-Ile-Val-
Ser-Pro-Arg-Cys-[Phe]Glu-Tyr-Gln-Ala-Gly-His-Asn-Lys-Val-Gly-
Ser-Leu-Gln-Tyr-Leu-Ala-Leu-Ala-Leu-Ile-Thr-Pro-Lys-Lys-Ile-
Lys-Pro-Pro-Leu-Pro-Ser-Val-Thr-Lys-Leu-Thr-Glu-Asp-Arg-Trp-Asn-
Lys-Pro-Gln-Lys-Thr-Lys-Gly-His-Arg-Gly-Ser-His-Thr-Met-Asn-Gly-
His;

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000

(2) an antibody against a peptide corresponding to
ORF-R having the following amino acid sequence:

[Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-
Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-
Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-
[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-
Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-
Phe]Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-
Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-
Glu-Lys-Gly-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-
Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-
Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-
Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe-
Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-
Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-
Trp-Arg-Phe-Asp-Ser-Arg-Leu-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-
His-Pro-Glu-Tyr-Phe-Lys-Asn-Cys;

*C 4
cont*

(3) an antibody against a peptide corresponding to
ORF-1 having the following amino acid sequence:

Met-Glu-Gln-Ala-Pro-Glu-Asp-Gln-Gly-Pro-Gln-Arg-Asp-Pro-His-Asn-
Glu-Trp-Thr-Leu-Gln-Leu-Leu-Glu-Gly-Leu-Lys-Asn-Glu-Ala-Val-Arg-
His-Phe-Pro-Arg-Ile-Trp-Leu-His-Gly-Leu-Gly-Gln-His-Ile-Tyr-Glu-
Thr-Tyr-Gly-Asp-Thr-Trp-Ala-Gly-Val-Glu-Ala-Ile-Ile-Arg-Ile-Leu-
Gln-Gln-Leu-Phe-Ile-His-Phe-Arg-Ile-Gly-Cys-Arg-His-Ser-Arg-
Ile-Gly-Val-Thr-Gln-Gln-Arg-Arg-Ala-Arg-Asn-Gly-Ala-Ser-Arg-Ser;

C 4
Cont

(4) an antibody against a peptide corresponding to
ORF-2 having the following amino acid sequence:

[Ala-Leu-Leu-Asn-Arg-Gly-Glu-Gln-Glu-]Met-Glu-Pro-Val-Asp-Pro-
Arg-Leu-Glu-Pro-Trp-Lys-His-Pro-Gly-Ser-Gln-Pro-Lys-Thr-Ala-Cys-
Thr-Thr-Cys-Tyr-Cys-Lys-Lys-Cys-Cys-Phe-His-Cys-Gln-Val-Cys-Phe-
Thr-Thr-Lys-Ala-Leu-Gly-Ile-Ser-Tyr-Gly-Arg-Lys-Lys-Arg-Arg-Gln-
Arg-Arg-Arg-Pro-Pro-Gln-Gly-Ser-Gln-Thr-His-Gln-Val-Ser-Leu-Ser-
Lys-Gln; and

(5) an antibody against a peptide corresponding to
ORF-3 having the following amino acid sequence:

Lys-Val-Leu-Leu-Ser-Leu-Pro-Ser-Leu-Phe-His-Asn-Lys-Ser-Leu-Arg-
His-Leu-Leu-Trp-Gln-Glu-Glu-Ala-Glu-Thr-Ala-Thr-Lys-Thr-Ser-Ser-
Arg-Gln-Ser-Asp-Ser-Ser-Ser-Phe-Ser-Ile-Lys-Ala-Val-Ser-Ser-Thr-
Cys-Asn-Ala-Thr-Tyr-Thr-Asn-Ser-Asn-Ser-Ser-Ile-Ser-Ser-Asn-
Asn-Asn-Ser-Asn-Ser-Cys-Val-Val-His-Ser-Asn-His-Arg-Ile;

(6) (5) an antibody against a peptide corresponding
to ORF-4 having the following amino acid sequence:

[Val-Val-His-Val-]Met-Gln-Pro-Ile-Gln-Ile-Ala-Ile-Ala-Leu-
Val-Val-Ala-Ile-Ile-Ile-Ala-Ile-Val-Val-Trp-Ser-Ile-Val-Ile-Ile-
Glu-Tyr-Arg-Lys-Ile-Leu-Arg-Gln-Arg-Lys-Ile-Asp-Arg-Leu-Ile-Asp-
Arg-Leu-Ile-Glu-Arg-Ala-Glu-Asp-Ser-Gly-Asn-Glu-Ser-Glu-Gly-Glu-
Ile-Ser-Ala-Leu-Val-Glu-Met-Gly-Val-Glu-Met-Gly-His-His-Ala-Pro-
Trp-Asp-Ile-Asp-Asp-Leu; and

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N. W.
WASHINGTON, DC 20005
1-202-408-4000

C6
Concl'd

(7) an antibody against a peptide corresponding to
ORF-5 having the following amino acid sequence:
His-Leu-Ser-Gly-Thr-Ile-Cys-Gly-Ala-Leu-Cys-Leu-Phe-Ser-Tyr-His-
Arg-Leu-Arg-Asp-Leu-Leu-Leu-Ile-Val-Thr-Arg-Ile-Val-Glu-Leu-Leu-
Gly-Arg-Arg-Gly-Trp-Glu-Ala-Leu-Lys-Tyr-Trp-Trp-Asn-Leu-Leu-Gln-
Tyr-Trp-Ser-Gln-Glu-Leu-Lys-Asn-Ser-Ala-Val-Ser-Leu-Leu-Asn-Ala-
Thr-Ala-Ile-Ala-Val-Ala-Glu-Gly-Thr-Asp-Arg-Val-Ile-Glu-Val-Val-
Gln-Gly-Ala-Cys-Arg-Ala-Ile-Arg-His-Ile-Pro-Arg-Arg-Ile-Arg-Gln-
Gly-Leu-Glu-Arg-Ile-Leu-Leu-;]

(b) reagents for the detection of the formation of antigen-
antibody complex; and

(c) a biological reference sample lacking antigens
recognized by said antibody composition,

wherein the antibody composition, reagents, and biological
reference sample are present in an amount sufficient to perform
the detection of antigen-antibody complex formed between said
one or more antibodies and antigens present in said biological
sample.

C7

33. (Amended) A diagnostic kit for the *in vitro* detection
of the presence or absence of antigens which bind to antibodies
of a human immunodeficiency virus type 1 (HIV-1) comprising:

(a) an antibody composition comprising an antibody against a peptide corresponding to ORF-R having the following amino acid sequence:

[Asp-Arg-Ala-Trp-Lys-Gly-Phe-Cys-Tyr-Lys-]Met-Gly-Gly-Lys-Trp-Ser-Lys-Ser-Ser-Val-Val-Gly-Trp-Pro-Thr-Val-Arg-Glu-Arg-Met-Arg-Arg-Ala-Glu-Pro-Ala-Ala-Asp-Gly-Val-Gly-Ala-Ala-Ser-Arg-Asp-Leu-[Phe]Glu-Lys-His-Gly-Ala-Ile-Thr-Ser-Ser-Asn-Thr-Ala-Ala-Thr-Asn-Ala-Ala-Cys-Ala-Trp-Leu-[Phe]Glu-Ala-Gln-[Phe-Phe-Phe-Phe]Glu-Glu-Glu-Glu-Val-Gly-Phe-Pro-Val-Thr-Pro-Gln-Val-Pro-Leu-Arg-Pro-Met-Thr-Tyr-Lys-Ala-Ala-Val-Asp-Leu-Ser-His-Phe-Leu-Lys-Glu-Lys-Gly-Gly-Leu-Glu-Gly-Leu-Ile-His-Ser-Gln-Arg-Arg-Gln-Asp-Ile-Leu-Asp-Leu-Trp-Ile-Tyr-His-Thr-Gln-Gly-Tyr-Phe-Pro-Asp-Trp-Gln-Asn-Tyr-Thr-Pro-Gly-Pro-Gly-Val-Arg-Tyr-Pro-Leu-Thr-Phe-Gly-Trp-Cys-Tyr-Lys-Leu-Val-Pro-Val-[Phe]Glu-Pro-Asp-Lys-Val-[Phe-Phe]Glu-Glu-Ala-Asn-Lys-Gly-[Phe]Glu-Asn-Thr-Ser-Leu-Leu-His-Pro-Val-Ser-Leu-His-Gly-Met-Asp-Asp-Pro-Glu-Arg-Glu-Val-Leu-Glu-Trp-Arg-Phe-Asp-Ser-Arg-Leu-Ala-Phe-His-His-Val-Ala-Arg-Glu-Leu-His-Pro-Glu-Tyr-Phe-Lys-Asn-Cys;

(b) reagents for the detection of the formation of antigen-antibody complex; and

(c) a biological reference sample lacking antigens recognized by said antibody composition,

wherein the antibody composition, reagents, and biological reference sample are present in an amount sufficient to perform the detection of antigen-antibody complex formed between said antibody and antigens present in said biological sample.

LAW OFFICES
FINNEGAN, HENDERSON
PARADOW, GARRETT
& DUNNER
1300 I STREET, N. W.
WASHINGTON, DC 20005
I-202-408-4000